

AMENDMENT OF THE CLAIMS

Please amend the claims as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A ~~composition comprising a~~ transposon-based vector comprising an isolated polynucleotide sequence encoding:

a) a gene operably linked to a first promoter, the gene encoding for a ~~bacterial~~ transposase; and,

b) one or more genes of interest operably-linked to one or more additional promoters, wherein the one or more genes of interest and their operably-linked promoters are flanked by transposase insertion sequences recognized by the ~~bacterial~~ transposase, and wherein the first promoter and the one or more additional promoters are cell-specific promoters or constitutive promoters.

2. (Currently amended) The transposon-based vector of claim 1, further comprising a ~~an isolated~~ polyA nucleotide sequence located 3' to the one or more genes of interest.

3. (Currently amended) The transposon-based vector ~~isolated polyA nucleotide sequence~~ of claim 2, wherein the ~~isolated~~ polyA nucleotide sequence is optimized for production of a protein, peptide or nucleic acid encoded by the one or more genes of interest.

4. (Original) The transposon-based vector of claim 1, wherein the one or more genes of interest code for a protein, a peptide or a nucleic acid.

5. (Currently amended) The transposon-based vector of claim 1, wherein the one or more ~~gene~~ genes of interest encodes for a nucleic acid which inhibits transcription.

6. (Currently amended) ~~A composition comprising an~~ An isolated polynucleotide sequence comprising:

a) one or more genes of interest operably-linked to one or more promoters;

b) a poly A nucleotide sequence located 3' to the one or more genes of interest;
and,

c) transposase insertion sequences recognized by a bacterial transposase, wherein the one or more genes of interest and their operably-linked promoters are flanked by the transposase insertion sequences and the one or more additional promoters are cell-specific promoters or constitutive promoters.

7. (Original) The isolated polynucleotide sequence of claim 6, wherein the one or more genes of interest code for a protein, a peptide or a nucleic acid.

8. (Currently amended) ~~An animal~~ A mammal, bird, or a human comprising the isolated polynucleotide sequence of claim 6.

9. (Canceled)

10. (Currently amended) An egg produced by the bird of claim 8 9.

11. (Currently amended) Milk produced by the mammal of claim 8 9.

12. (Currently amended) A cell of a mammal, bird, or human comprising the isolated polynucleotide sequence of claim 6.

13. (Original) A method of providing gene therapy to an animal or a human comprising administering to the animal or the human the transposon-based vector of Claim 1.

14. (Currently amended) The ~~method~~ transposon-based vector of claim 1 13, further comprising at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the codon to an adenine or thymine without modifying the amino acid encoded by the codon; or (d) a polyA sequence operably-

~~linked to the transposase gene wherein the one or more additional promoter is a cell specific promoter.~~

15. (Original) The method of claim 13, wherein the gene of interest codes for production of a protein, peptide or nucleic acid.

16. (Original) The method of claim 13, further comprising a polyA sequence located 3' to the one or more genes of interest.

17. (Original) The method of claim 13, wherein the gene therapy comprises production of a protein, peptide or nucleic acid encoded by the one or more genes of interest in the animal or the human.

18. (Original) The method of claim 13, wherein the administration is effective to treat a disease or a condition.

19. (Currently amended) The method of claim 13, wherein the administration of the transposon-based vector results in a transfection efficiency rate of at least 40%.

20. (Original) The method of claim 13, wherein the administration occurs through the vascular system.

21. (Original) An animal produced by the method of claim 13.

22. (Currently amended) ~~Use of the composition of~~ A composition comprising the transposon-based vector of claim 1 and a carrier suitable for administration ~~any one of claims 1-7, in the preparation of a medicament useful for providing gene therapy to an animal or human following administration of an effective amount of the composition to the~~ an animal or the a human .

23. (Canceled)

24. (New) The method of claim 13, wherein the transposon-based vector comprises at least one of: (a) a Kozak sequence positioned so as to include at least the first codon of the transposase gene; (b) two stop codons operably-linked to the transposase gene; (c) a modified transposase gene sequence, wherein at least one of the first twenty codons of the transposase gene is modified by changing a nucleotide at a third base position of the codon to an adenine or thymine without modifying the amino acid encoded by the codon; or (d) a polyA sequence operably-linked to the transposase gene.

25. (New) The method of claim 17, wherein the nucleic acid is an inhibitory RNA.